Comments on the proposed adoption of Berestneff, 1904 as the author of *Leucocytozoon* (Protista, Haemosporida) and of *Leukocytozoen danilewskyi* Ziemann, 1898 as the type species

(Case 3089; see BZN 56: 168–170)

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I should like to comment briefly on this application from the perspective of an entomologist. With only one recorded exception, the species of leucocytozoon blood-parasites with known vectors are transmitted among their bird hosts solely by bloodsucking Diptera of the family SIMULIIDAE (blackflies). A few years ago, while researching the systematic and biological literature on *Leucocytozoon* for a chapter in my book on the natural history of blackflies, I came upon the generic authorship anomaly that is now brought forward for resolution by the Commission. The matter was unimportant for my purposes but did have me perplexed as to why the parasitologists should be in such seeming disarray. Dr Valkiūnas makes a good case now for his solution to the problem and I support it.

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I would like to add my strong support for the application by Dr Valkiūnas to conserve the genus *Leucocytozoon* Berestneff, 1904 with *L. danilewskyi* (Ziemann, 1898) as the type species. The literature is already confused with inconsistent use of the names *L. danilewskyi* and its junior synonym *L. ziemanni* (Laveran, 1902).

Garnham (1966) in his outstanding monograph *Malaria parasites and other Haemosporidia* lucidly discussed the genus *Leucocytozoon*; he concluded that attribution to Berestneff (1904) was correct and recognised *L. danilewskyi* (Ziemann) as the type species.

The approval of this application is essential for maintaining a stable nomenclature, which is particularly critical for research and practice in avian blood parasites.

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1. In his application to the Commission Dr Valkiūnas has sought to rationalise the situation relating to the designation of authorship of the haematozoan genus *Leucocytozoon* and the establishment of the type species. As he rightly states, this problem has given rise to much debate over the years and preferences have swung from one view to the other frequently during this time. Valkiūnas has not provided any new argument, but has simply reiterated previous discussion and views with a conclusion that the situation should be resolved once and for all. His references to published discussion on the topic do not go beyond the early

1970s and he has not taken account of a more recent paper on the subject, namely that of Bennett, Earle & Peirce (1993). This paper, published by the International Reference Centre for Avian Haematozoa, deals with the taxonomic review of leucocytozoids of the Falconiformes and Strigiformes. With specific reference to the latter group the question as to the validity of *L. danilewskyi* as the type species was considered from a fresh perspective. It was concluded that, because Ziemann did not describe the leucocytozoid, he had not made the name *Leukocytozoen danilewskyi* available and that the continued use of that specific name was invalid.

2. The first author to properly describe a leucocytozoid (*Leucocytozoon ziemanni*) from the Little Owl *Athene noctua*, with both illustrations and measurements, was Laveran (1902). In this paper Laveran described parasites from the Great Tit *Parus major* as well as from *Athene noctua*, all under the generic name *Haemamoeba*. Wenyon (1926) adopted the generic name *Leucocytozoon*.

3. Because the description of *L. majoris* appeared before that of *L. ziemanni* in Laveran's paper, this was considered to be the type species for many years. However, because gametocytes of a leucocytozoid from *Athene noctua* had been illustrated by Ziemann (1898) it was concluded that *L. ziemanni* should take priority over *L. majoris*. A neohapantotype slide was designated (IRCAH:92604) by Bennett, Earle & Peirce (1993) and the reference to authorship recorded as '*Leucocytozoon ziemanni* (Laveran, 1902) Wenyon, 1926'. In fact the first author to use the name *Leucocytozoon ziemanni* was Lühe (1906) as pointed out by Bennett et al. (1975) and included in his generic review of *Leucocytozoon* by Sambon (1908). Therefore, the correct name of the type species should be *Leucocytozoon ziemanni* (Laveran, 1902), Lühe (1906).

4. It has to be remembered that at the end of the 19th century and in the early 20th century protozoology was in its infancy, and scientists were not clear as to what parasites they were observing and their relationships to other haematozoa in particular. Many of the earliest references fail to meet the criteria for availability and this is particularly true of Ziemann (1898) who really had no idea what he was observing. His use of the name *Leukocytozoen danilewskyi*, irrespective of the spelling of the generic name, was accompanied by a '?'. As pointed out by Bennett et al. (1975), various later authors have misconstrued Ziemann's latin usage of the genitive case (i.e. 'the leucocytozoen of Danilewsky') as a specific name. Although well illustrated, there was no proper description.

5. The question as to the authority of the generic name *Leucocytozoon* is a separate issue. It needs to be considered whether the worker who first used the name with the generally accepted spelling should be considered the author, or whether this should fall to the worker who first provided the taxonomic criteria on which the genus could be identified. Therefore, while Berestneff (1904) was the first to use the spelling *Leucocytozoon*, it was Sambon (1908) who first clearly defined the characteristics of the genus and it is for this reason that he has been attributed with authorship of the genus, i.e. *Leucocytozoon* Sambon, 1908.

6. With specific reference to the points on which Valkiūnas has asked the Commission to rule in para. 7 of his submission, I fully endorse the proposal to suppress the generic name *Leukocytozoen* Ziemann, 1898. This spelling is rarely used by taxonomists and it is desirable to rationalise the situation.

7. As to the other issues raised, I believe that, for the reasons given in my para. 5 above, authorship of *Leucocytozoon* should be attributed to Sambon (1908). Ziemann (1898) did not describe *L. danilewskyi* as an identifiable and acceptable species and that specific name cannot be adopted from Berestneff (1904) since that author was preempted by Laveran (1902) who described *ziemanni* from the same host species. I therefore consider that *Leucocytozoon ziemanni* (Laveran, 1902) should be ruled as the type species of *Leucocytozoon* Sambon, 1908.

8. Over the last 25 years most authors to my knowledge have used *L. ziemanni* as the type species of *Leucocytozoon*, Valkiūnas being one of the exceptions. As supporting evidence, I list papers by: Khan, 1975; Kocan & Kocan, 1978; Peirce, 1989; Bennett, Earle, du Toit & Huchzermeyer, 1992; Bennett, Earle & Peirce, 1993; Bennett, Peirce & Earle, 1994.

9. This evidence clearly supports the view that *L. ziemanni* has been widely and consistently accepted as the type species over the last 25 years. If, nevertheless, *L. danilewskyi* is considered to be an available name, I propose that it should be suppressed for the purposes of the Principle of Priority but not for those of the Principle of Homonymy by the Commission under its plenary power in order to maintain the present usage of *L. ziemanni* as type species and Sambon (1908) as author of the nominal genus *Leucocytozoon*.

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I am in full support of the application to adopt Berestneff, 1904 as the author, and of *Leukocytozoen danilewskyi* Ziemann, 1898 as the type species, of the genus *Leucocytozoon*.

Unfortunately, G.F. Bennett was inconsistent in his attempt to clarify the status of the specific name *L. danilewskyi*. In 1975, Bennett (Bennett et al., 1975) declared *L. danilewskyi* to be a nomen nudum; this was an invalid action because the original paper, in which the name was established, was accompanied by excellent illustrations. In 1982, Bennett changed his mind and accepted *L. danilewskyi* as a valid name (Bennett et al., 1982, p. 217). In 1992, he (see Bishop and Bennett, 1992, p. 187) declared *L. danilewskyi* to be an invalid synonym of *L. ziemanni* (Laveran, 1902) in spite of the fact that the former name had priority. In 1994, Bennett excluded *L. danilewskyi* from the list of available names and used *L. ziemanni* as a valid name (Bennett et al., 1994, p. 70). This inconsistency contributed to instability in specific names of leucocytozoids.

It is important to note that the name *L. danilewskyi* has been frequently used in the literature in the last three decades (see for example, Burtikashvili, 1978; Peirce, 1981; Kairullaev & Yakunin, 1982; Kairullaev, 1985; Kirkpatrick & Lauer, 1985; Valkiūnas, 1988; Krylov, 1994, 1996; Valkiūnas, 1997), and there is no doubt what taxon it denotes. Berestneff (1904) as the author of the genus *Leucocytozoon* has been accepted in several important and well-illustrated books on the subject (Garnham, 1966; Krylov, 1996; Valkiūnas, 1997).

The ruling of the Commission on the subject will provide stability in zoological nomenclature which is under threat particularly since the publication by Bennett et al. (1975).

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Comments on the proposed conservation of the specific name of *Bulinus wrighti* Mandahl-Barth, 1965 (Mollusca, Gastropoda)

(Case 3126; see BZN **56**: 113–116)

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The fact that *Bulinus wrightii* Sowerby, 1853 is an achatinid and *Bulinus reticulatus wrighti* Mandahl-Barth, 1954 is a planorbid in my view makes it very unlikely that the two species were originally described in the same nominal genus, notwithstanding the same generic name was used for them. Even a non-malacologist like me would never consider the two to be congeneric. It seems more likely, as has been suggested already, that Sowerby made a typographical or clerical error in writing '*Bulinus*'